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PBIN to Provide New Mapping Capability

The NBII's Pacific Basin Information Node (PBIN) is completing beta testing of a new mapping capability that will soon be available through PBIN <pbin.nbii.gov> to a much broader audience. This new natural resource mapping service includes contributions from the Hawaii Natural Heritage Program, the National Mapping Division (NMD) of the U.S. Geological Survey (USGS), the USGS Pacific Island Ecosystems Research Center, the B.P. Bishop Museum, and others. PBIN is coordinating this wide-ranging effort.

"The goal is to provide a layered mapping service that can paint a better picture for natural resource

managers, planners, biodiversity information experts, and the general public of what's really happening with the flora and fauna of Hawaii and the Pacific Basin overall," says PBIN's Derek Masaki. He adds, "In addition to numerous Hawaiian data sets that are already available, we'll soon be adding data from such diverse locations as Guam (a snake sighting database), the Cook Islands, and Midway."

Currently, the mapping service application resides on a Windows 2000 server running ESRI Arc IMS (Internet Map Server), version 4.0. The visual interface is enhanced by a Geocortex IMF (Internet Map Framework) product that eases the uploading and display of the service's

variety of map layers. The mapping service is available through standard Internet browsers.

The Open GIS (geographic information system) WMS (Web Map Server) connector has been installed to provide a connection to the USGS National Map. The National Map covers the nation — including Hawaii, of course — and contributes eight primary data layers or themes to the mapping capability: digital orthorectified imagery, elevation, hydrography (water), transportation, boundaries, cultural features, geographic names, and land cover. The National Map will serve as a foundation for integrating, sharing, and using other government and

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IBIS Bridges Northwest States and Canada

The Interactive Biodiversity Information System (IBIS) is enabling the NBII's Pacific Northwest Information Node (PNWIN) to provide a dynamic source for information exchange, communication, and decision support tools throughout Oregon, Washington, Idaho, western Montana, and British Columbia, Canada.

The National Biological Information Infrastructure (NBII) <<http://www.nbii.gov>> is a Web-based system that provides access to biological data and information on the nation's biological resources. Through the NBII, information from government agencies, universities,

natural history museums, and many others is made available to NBII users, who include resource managers at public agencies, scientists in the public and private sectors, educators at all levels, and the general public.

The Northwest Habitat Institute is a principal partner in PNWIN and has been working to develop IBIS to transcend local, state, and provincial boundaries. IBIS advances environmental management through organized science and accessible information. It provides practical, foundational, and architectural tools for supporting the integration and

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The National Biodiversity Network – Sharing Information about Wildlife

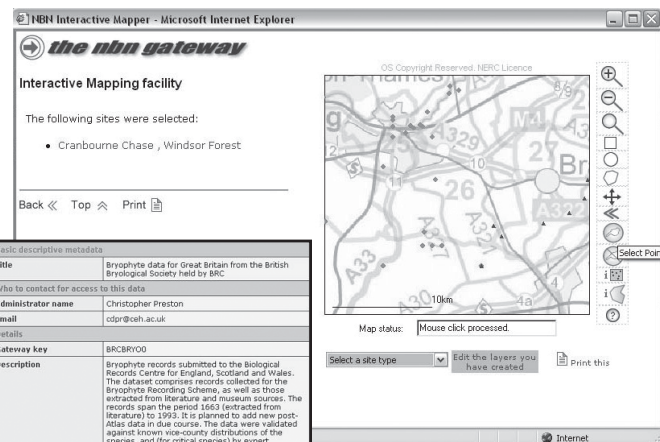
The National Biodiversity Network (NBN) is a new way of sharing and accessing biodiversity information in the United Kingdom (UK). The idea behind the Network is simple. The UK already has notebooks, filing cabinets, and computer databases full of biodiversity information, which is being added to daily. This is often done in an ad hoc fashion by about 60,000 public body, volunteer, and private recorders, making it difficult to keep track of and access. The Internet and digital media offer excellent opportunities for the NBN to store, access, and share most of this information with the UK's recorders and decision-makers in a way never experienced before. Moreover, thanks to developments in Web services such as XML, the NBN can share information worldwide as the UK node of the Global Biodiversity Information Facility (GBIF) <www.gbif.org> (the NBII is the U.S. node for GBIF).

Internet access to NBN data is

provided through the NBN Gateway. The Gateway, like the NBII Metadata Clearinghouse, provides a place where biodiversity metadata, tools, and information are collated and indexed. However, the NBN Gateway has

systems to provide direct access to data sets and to the raw data, allowing them to be analyzed, interrogated, and downloaded. The Gateway <www.searchnbn.net> currently does this by warehousing the data sets in one place, on a SQL database. This has the advantage of being able to deliver data much quicker than a dispersed system.

Once a data set has been uploaded,



it can be viewed freely by anyone using the Gateway, though not everyone will be

able to see the data at high resolution. The owners of the data maintain control by restricting access to sensitive data, setting the resolution the data can be viewed at, and by keeping information up to date. They can do this easily through the use of the Gateway's administration tools.

So far the Gateway database holds:

- 61 data sets (12 million occurrence records and 7,553 species) from 31 contributing organizations,
- 25 GIS habitat layers from five contributing organizations, and
- 12 administrative boundary layers from nine contributing organizations.

In parallel to this technical development, the NBN Trust, the charity facilitating and coordinating the Network, has been working with partners from the public and voluntary sectors to develop recording and metadata standards, a set of principles for data exchange, and, more recently, licenses to ensure that data owners, managers, and recorders fully understand and agree on how their data are to be used. The NBN Web site has full details of its licenses, guidance, and standards to download at <www.nbn.org.uk/guidance>.

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Visit the NBII Home Page at <<http://www.nbii.gov>>.

The Great Basin Information Project

The NBII, in partnership with the USGS Forest and Rangeland Ecosystem Science Center's Snake River Field Station in Boise, ID, will initiate a new project beginning in fall 2003. The Great Basin Information Project will provide consolidated and efficient access to information about this 110,000 square mile region of the western United States. The Great Basin, which derives its name from the fact that its rivers and lakes have no outlet to the sea, lies mostly in Nevada and extends into California, Oregon, Idaho, and Utah. It is bordered by the Sierra Nevada on the west, the Rocky Mountains and the Colorado Plateau on the east, the Mojave Desert on the south, and the Columbia Plateau on the north.

Three major plant communities characterize the Great Basin: sagebrush, salt desert shrub, and pinyon-juniper woodlands. Salt desert shrub usually grows in low, dry

elevations, whereas sagebrush needs moist surroundings with sandy and slightly alkaline soils. Pinyon-juniper woodlands skirt the flanks of mountains, and forests of pine, spruce, fir, and aspen blanket the high peaks. These plant communities are home to more than 200 bird, 70 mammal, and 20 amphibian and reptile species. Some of these are sensitive, threatened, and endangered species found nowhere else.

The unique biodiversity of the Great Basin faces potentially devastating and irreversible change as a result of land uses and growth of human populations in the region. A wide variety of stakeholders are involved in managing the region, and some of the realized and potential changes are tied to local or individual decisions without a regional or cumulative understanding of the consequences. In general, management practices that were designed and implemented at local scales have not accounted for the larger patterns or processes that enable ecosystems to function in perpetuity and maintain their structure and

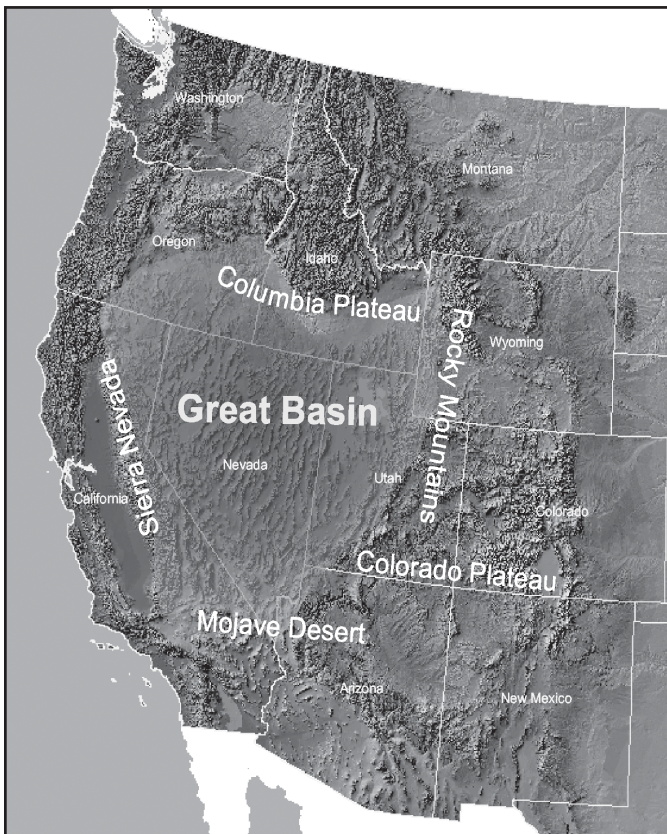


Representative terrain in the Great Basin.

organization through time. Some of the most significant resource issues that exist on public, private, and tribal lands within the Great Basin include: invasive species, loss of native species, altered fire regimes, increasing human populations and associated pressures, competition for water resources, and mineral and energy development.

Effective decision-making and management of the natural resources of an area as complex as the Great Basin requires ready access to a vast array of information so that stakeholders can work together in an informed fashion. The long-term vision is for the Great Basin Information Project to evolve into the nationally and internationally recognized source of information about the Great Basin. The initial focus will be on the development of a Web site, a metadata server, a bibliography, and an educational Internet mapper. These four components will serve as the groundwork for an Internet-accessible Great Basin Information Project that will provide immediate benefits to a wide variety of users and stakeholders in the region.

For more information on the project, please contact the NBII's Julie Prior-Magee by e-mail <jpmagee@nmsu.edu> or phone: 505/646-1084.



The Great Basin

evaluation of land and water conservation strategies.

The IBIS program <www.nwhi.org/ibis> reflects the scientific, technical, and policy shift from single-species wildlife management to an operational multi-species system, with habitats as the central management feature. The premise is that as the health of each habitat declines (or improves) – so goes the health of all of the wildlife species associated with that habitat. Through the mapping of the habitats and wildlife species ranges, IBIS dissolves political boundaries to gain a regional perspective. The program offers a means to incorporate the needs of all Pacific Northwest wildlife species

The core of this program consists of a queryable data system on marine, freshwater, and terrestrial wildlife and their habitats.

into a hierarchical, coherent, and scientifically rigorous format for conservation planning from the local to regional levels. The program started with Oregon and Washington, and has expanded to all of Idaho, western Montana, and a portion of British Columbia, Canada.

The core of this program consists of a queryable data system on marine, freshwater, and terrestrial wildlife and their habitats. Users access detailed information on some 771 wildlife species, their 32 habitats, geographical maps, and explanatory text.

Key innovations include:

- 23 multi-organizational teams oversee the design and development of the program,
- Program is supported by 40 organizations with input from over 600 people,
- Definitions for over 300 wildlife-

[illegible]

Sample product of the joint effort between Canada and the United States to develop a wildlife-habitat type map of the entire Columbia River Basin using IBIS information.

habitat terms have been collectively agreed upon,

- First time identifying and mapping wildlife-habitats for the region,
- First time development of regional wildlife species range maps based on presence of habitats, and
- First time determination of salmon-wildlife relationships.

Advancement of new environmental management concepts include identifying: Key Environmental Correlates, Multi-Value Habitat Approach to Mitigation, Management Activity Links, Riparian and Wetland Obligate Species, and Identifying and Mapping Key Ecological Functions. Currently only about 20 percent of

IBIS data is developed at the interactive Web site.

IBIS currently supports the wildlife portion of the Northwest Power and Conservation Council's Subbasin Planning effort for the Columbia River Basin and features data coupled with an interactive Internet interface for the 62 subbasins.

The ability to replicate IBIS was demonstrated by the British Columbia's Ministry of Water, Land, and Air and British Columbia's Forest Service who developed a complementary data set from IBIS called *Wildlife Habitat Relationships in BC's Columbia Basin*. The British Columbia site can be found at: <http://habitat.cbt.org>.

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private-sector data easily and consistently.

Other map layers include vegetation and approximate soil type, alien species, native species, remaining native vegetation, and historic native vegetation. Users will be able to request selected layers of information or data from a GIS database, display the data, and perform simple GIS functions on the selected data layers.

Asked to name typical customers and uses for the new site, Masaki says that many groups want to learn more about Hawaii's invasive species. Groups that could find the site quite useful include the invasive species committees that are located on each of the main islands and the

Hawaii Department of Agriculture (HDOA). Information on, perhaps, miconia (a widely dispersed invasive plant) might be collected by an invasive species committee field

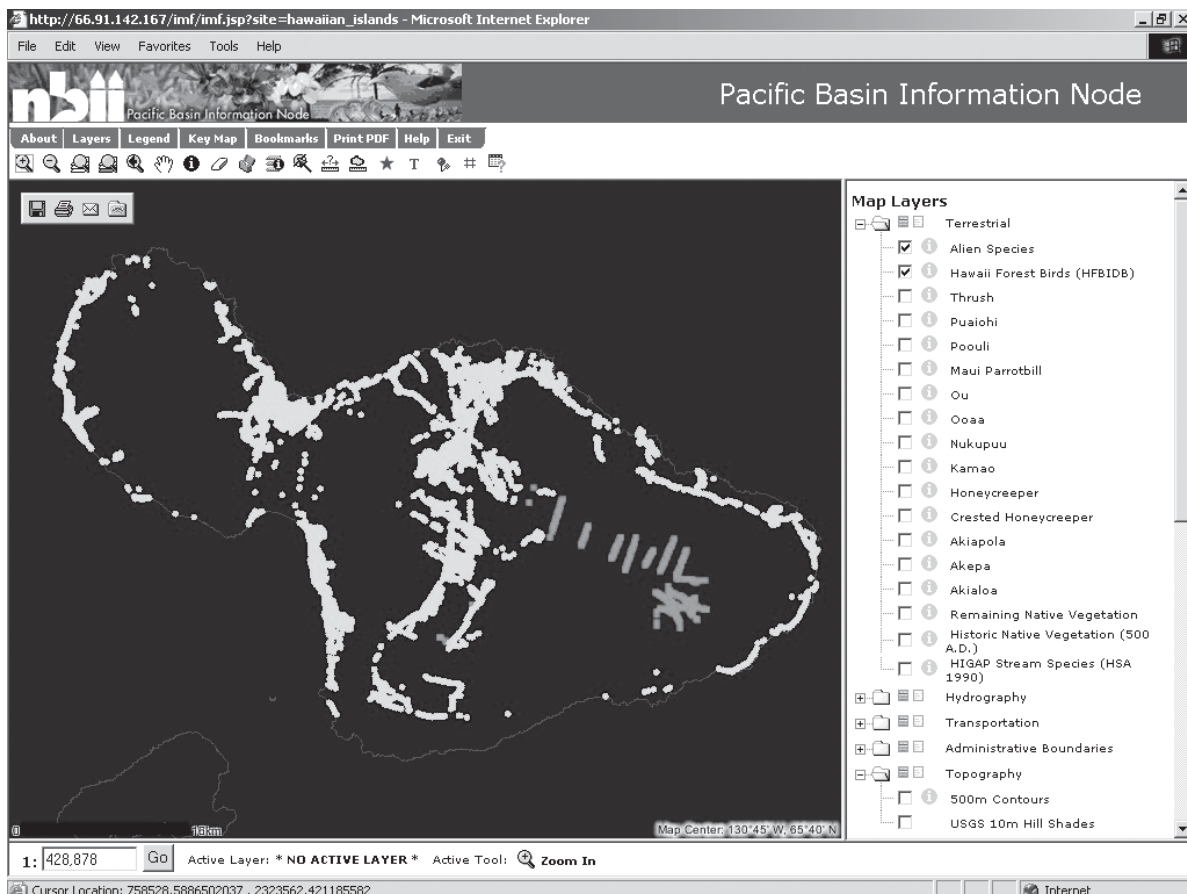
Groups that could find the site quite useful include the invasive species committees that are located on each of the main islands and the Hawaii Department of Agriculture.

operative. That information could be made available through the map service, including address mapping and parcel level information. The

field operative could then contact HDOA, who could bring up the map viewer, get a map of local miconia distribution, note the sites, and then contact the appropriate individuals to proceed with eradication.

PBIN's new mapping capability got started in 2002 but became a viable entity in the second quarter of 2003. With the internal review now complete, it is expected to be widely available in the November-December 2003 timeframe.

To learn more about partnering opportunities on this new mapping capability, please contact PBIN Manager Mark Fornwall at <mark_fornwall@usgs.gov>. For technical questions, contact Derek Masaki at <dmasaki@usgs.gov>.



This example of PBIN's new mapping capability lets you turn on a layer displaying Maui invasive species information. Tools in the upper menu bar let you zoom, pan, display feature information, display map/legend, highlight, query, and annotate the map display.

International Connections

Biodiversity Data Rescue in Tropical Paraguay

The NBII and Guyra Paraguay, a prominent biodiversity conservation non-government organization, are working together on a proposal for a project that will identify, accumulate, standardize, and disseminate biodiversity information. This process will enhance the value of existing data and make them more readily available to scientists, policy makers, and the public. Guyra Paraguay will provide the in-country expertise necessary to implement the project and the NBII will provide tools, logistical support, and technical guidance.

The first phase of the project will consist of a workshop for data managers of protected areas and owners of sites recognized as Important Bird Areas. Training in the use of Bioinventory Builder, a custom bioinventory software tool developed by the Information Center for the Environment (ICE) at the University of California, Davis, will be provided to workshop participants. This software tool is used to create standardized, documented, taxonomically harmonized species



photo credit: Guyra Paraguay/Alberto Yanosky

Once occurring in flocks of hundreds of individuals, the blue-and-yellow macaw (or "caninde" as it's known locally), is now on the verge of extinction in Paraguay.

inventories of all important natural sites in the country. Site and species names will be harmonized to international standards and metadata tags added to enhance the value of these existing data and to enable these data to contribute to major biodiversity information initiatives. In phase two, Guyra staff will locate and copy existing biodiversity information and catalog existing species inventories. The accumulated and standardized data will then be disseminated via the Internet from both Guyra and ICE servers. During phase three, project staff will publish the results of their activities via the project Web sites and in appropriate scientific journals. Guyra will use the data assembled to prioritize biodiversity sites, and outreach efforts will educate decision makers.

This project will result in greatly enhanced access to standardized, taxonomically harmonized bio-inventory data, substantially increasing the value of these existing, but poorly known and relatively inaccessible data, and allow these

data to contribute toward several national and international biodiversity initiatives, including the Inter-American Biodiversity Information Network, the Global Biodiversity Information Facility, and the Convention on Biological Diversity. It is expected to serve as a model for similar initiatives elsewhere.

The project will complement another NBII - Guyra Paraguay collaboration: making new photographs of the incredibly diverse Paraguayan wildlife available through the NBII Image Gallery.

Examples of Guyra Paraguay's work can be viewed at <<http://www.guyra.org.py/>>. The ICE Inventories for Protected Areas Flora and Fauna may be found at <<http://ice.ucdavis.edu/mab/>>.

Please contact Andrea Grosse <agrosse@usgs.gov> or Emily Medley <emedley@infointl.com> for further information about the proposed project or to share information about potential funding opportunities. 🌿

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*National Biodiversity Network
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Other work being guided by the NBN Trust is examining how best to ensure the NBN is being used to meet real needs and how it can encourage people to access the data. For example, a study carried out by the Rural Development Service (RDS) <www.defra.gov.uk/corporate/rds/default.asp> showed that about half of agri-environment schemes would have different objectives given better access to data. The NBN Trust is therefore looking into how the Network can be used by the European Union's Water Framework Directive (2003) and Biodiversity Action Planners in day-to-day activities.

Meanwhile, GBIF is developing systems similar to those of the NBN and the NBII. Like the NBN, it requires standards for data exchange and has taken advantage of the lessons learned by the NBN Trust. GBIF is working towards providing access to information held on dispersed databases or "nodes," in a similar way to the NBII model. The NBN's original vision was to do the same, but during the proof-of-concept stage, the warehouse solution was adopted. It is hoped that as the NBII and GBIF develop the dispersed database model further, the Gateway team will learn from their experiences and create something similar in the UK.

It is encouraging that so many countries are working towards sharing their biodiversity information, not only with their residents, but worldwide. There are almost 40 countries participating in GBIF, working together, avoiding duplication of effort, and sharing experiences for a common goal.

For further information about the National Biodiversity Network and the NBN Trust, visit <<http://nbn.org.uk>> or contact NBN Trust Secretariat by phone: +44 (0)1636 670090 or e-mail: <support@nbn.org.uk>. 

Upcoming Events of NBII Interest

American Society for Information Science & Technology (ASIST), Long Beach, CA.	October 19-22
Wetlands 2003, Nashua, NH.	October 20-24
Association for Educational Communications and Technology, Anaheim, CA.	October 22-24
Plant Genetics 2003: Mechanisms of Variation, Snowbird, UT.	October 22-26
Society of American Foresters 2003 Annual Conference, Buffalo, NY.	October 25-29
Terrain Data: Applications and Visualizations, Charleston, SC.	October 28-30
"Metasearch: What It Is Now, What It Could Be, and How Standards Can Help Us Get There" NISO workshop, Washington, DC.	October 29
American Water Resources Association 2003 Annual Conference, San Diego, CA.	November 2-5
Internet Librarian, Monterey, CA.	November 3-5
7 th International Conference on the Ecology & Management of Alien Plant Invasions, Invasive Plants in Natural and Managed Care Systems Conference, Miami, FL.	November 3-7
EDUCAUSE 2003, Anaheim, CA.	November 4-7
North American Lake Management Society 2003: Protecting Our Lakes' Legacy, Mashantucket, CT.	November 5-8
"OpenURL: The Next Generation of Improving Access to Full-text Content" NISO workshop, Washington, DC.	November 13
The Second International Congress on Wildland Fire Ecology And Fire Management/Symposium on Fire and Forest Meteorology, Orlando, FL.	November 16-20
Wildlife Habitat Council 15 th Annual Symposium, Baltimore, MD.	November 17-18
Digital Library Federation Forum, Albuquerque, NM.	November 17-19
Society for Ecological Restoration 2003 Annual Conference, Austin, TX.	November 19-22
Desert Fishes Council 2003 Annual Meeting, Death Valley, CA.	November 19-23
Online Information, London, England.	December 2-4
Grey Literature Conference, Amsterdam, The Netherlands.	December 4-5
Fall Coalition for Networked Information (CNI) Meeting, Portland, OR.	December 8-9
World Summit on the Information Society, Geneva, Switzerland.	December 10-12

NBII Metadata Program Awarded Grant

Each year the Federal Geographic Data Committee (FGDC) offers a competitive grant program — the Cooperative Agreements Program (CAP) — to promote partnerships that enhance the National Spatial Data Infrastructure (NSDI) effort. This year, the NBII was awarded a \$40,000 grant for metadata outreach. The grant was developed for organizations with established metadata programs to extend their infrastructure by providing support to other organizations with smaller scale metadata programs.

The NBII will use this grant in the coming year to promote the establishment of new metadata programs, and to provide infrastructure support to organizations interested in making their records available online. Outreach activities will include training workshops in metadata creation using the FGDC

standard and the Biological Data Profile (a profile that adds, among other things, taxonomic information to the record), provision of quality control services, and establishment of Clearinghouse nodes for new metadata partners.

Recently, the NBII partnered with the U.S. Fish and Wildlife Service (USFWS) in an effort to make National Wildlife Refuge System metadata records current and available online. The USFWS identified the most important records in the first of five regions to be included in a newly established node on the NBII Clearinghouse. A customized template was developed to increase the ease and accuracy of quality control for reviewing Refuge legacy records. Finally, the records were made available online in a distinct node on the NBII Clearinghouse. The NBII's virtual Clearinghouse system

alleviates responsibility for maintaining a Z39.50 infrastructure; instead, partners' metadata are harvested from publicly accessible servers. This partnership has resulted in a successful collaborative effort to make the National Wildlife Refuge System records current and available. Although work is ongoing, the framework has been established for future outreach efforts with other partner organizations. The CAP Grant funding provides an avenue for the NBII to continue to provide such assistance to other organizations in the upcoming year.

If your organization is interested in pursuing a similar metadata partnership with the NBII, please contact Viv Hutchison, NBII Metadata Program Coordinator, by e-mail at <vhutchison@usgs.gov> or phone: 703/648-4311. 🌿



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